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DAVID W. WESTPHAL
CONOCOPHILLIPS COMPANY
P.O. BOX 1267
PONCA CITY, OK 74602-1267

EXAMINER	
DOROSHENK, ALEXA A	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 06/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/625,710	KELLER, ALFRED E.	
	Examiner	Art Unit	
	Alexa A. Doroshenk	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-12,15-17,21-23 and 25-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☒ Claim(s) *8-12,15-17,21-23 and 25-27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3-15-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. It is noted that the references submitted as attachments to the response to office action of January 14, 2004 have not been submitted as part of an Information Disclosure Statement and therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Rejections - 35 USC § 112

2. Claims 21 and 22 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear as to if the reactor and condenser of claim 21 are the same reactor and condenser as those recited in claim 8 or if they are additional structural elements. It is suggested that if they are the same elements as those recited in claim 8, that applicant amend these limitations to reflect such a relationship. If they are additional structural elements then it appears that the claim is incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: any of the elements of claim 8 in relationship to any of the elements of claim 21.

For examination purposes, the reactor and condenser of claim 21 are interpreted to be the same as that of claim 8.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: the quench tower and any other structural element of the claims.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 8, 9, 11, 12, 17 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Jong et al. (5,720,901) in view of Kiliany et al. (5,512,260).

With respect to claim 8, De Jong et al. discloses an apparatus for partial oxidation comprising:

a reaction zone (2) for receiving light hydrocarbons (col. 4, lines 16-29), H_2S (col. 4, lines 1-8) and oxygen (col. 4, lines 30-31);

said reaction zone including a catalyst suitable for partial oxidation (col. 4, lines 1-6); and

a sulfur removal zone (22).

De Jong et al. also discloses that any suitable technique for use in the desulfurization unit for removing sulfur from a gaseous stream known to the art can be used, but fails to specify a sulfur condenser.

Kiliany et al. teaches a sulfur condenser for the purpose of removing sulfur from the product gas of an oxidation reactor (col. 4, lines 24-33).

As De Jong et al. discloses that any known process for desulfurization of the gas stream can be used (col. 8, lines 21-28), it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the sulfur condenser of Kiliany et al. for the sulfur removal unit in De Jong et al. since it is merely the selection of a means known to the art for the removal of sulfur from a gas stream.

With respect to claim 9, De Jong et al. teaches that the hydrocarbon, oxygen and the sulfur-containing compound are "preferably well mixed prior to being contacted with the catalyst" (col. 5, lines 32-36) and discloses wherein the streams are mixed prior to being feed to the partial oxidation reactor (col. 7, line 65- col. 8, line 10).

With respect to claim 11, De Jong et al. discloses an oxygen line that communicates with the reaction zone (col. 7, lines 65-67).

With respect to claim 12, De Jong et al. discloses a mixing zone that receives oxygen (col. 5, lines 32-35).

With respect to claim 17, De Jong et al. discloses wherein the catalyst used contains rhodium, palladium, iridium or platinum (col. 5, line 65- col. 6, line 9).

With respect to claim 21, the modified apparatus of De Jong et al. provides inlets for light hydrocarbon gas, oxygen and H_2S, a sulfur condenser and a tailgas processing unit, as discussed above. De Jong et al. does not provide for a boiler for gases from the reactor, a heater for receiving gases from the condenser then to the tailgas cleanup unit.

Kiliany et al. has been used above to provide the sulfur condenser, as discussed above. Kiliany et al. further teaches the use of a boiler (63) for the gases from a reactor

in order to generate a process stream which is "very useful" with waste heat (col. 5, line 66- col. 6, line 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such a boiler in the device of De Jong et al. in order to efficiently utilize the heat of the device to produce a useful process stream.

Kiliany et al. continues from the teaching of a condenser to demonstrate a tailgas processing unit which uses the gas from a condenser to a heater (81) and then to a tailgas clean-up unit (80). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the heater and clean-up unit of Kiliany et al. in order to use De Jong et al.'s teaching of a sulfur-free product stream to be processed (supplied to sulfur-sensitive applications) downstream of the sulfur removal (col. 8, lines 16-20).

With respect to claim 22, Kiliany et al further teaches a cooler (64) for receiving gas from the tail gas unit, and a quench tower (col. 6, lines 2-5) for the purpose of cooling and quenching the tail gas product. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a cooler for receiving gas from the tail gas unit, and a quench tower in De Jong et al. in order to cool and quench the tail gas product as taught by Kiliany et al.

With respect to claim 23, De Jong et al. disclose wherein catalyst is rhodium, palladium, iridium or platinum (col. 5, line 65- col. 6, line 9) and such catalysts are capable of catalyzing the claimed reactions.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Jong et al. (5,720,901) in view of Kiliany et al. (5,512,260) as applied to claim 9 above, and further in view of Dubois et al. (5,472,920).

The modified apparatus of De Jong et al. teaches a mixing zone prior to a reaction zone, but is silent as to a thermal barrier between the two.

Dubois et al. teaches a thermal barrier that can be used between the mixing and reaction zones (col. 1, lines 11-14) in a reactor for the purpose of preventing excess heating of certain components that when exceeding acceptable limits have deterioration in their properties. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a thermal barrier between the mixing zone and reaction zone in the modified apparatus of De Jong et al. in order to prevent excess heating of certain components that when exceeding acceptable limits have deterioration in their properties.

6. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Jong et al. (5,720,901) in view of Kiliany et al. (5,512,260) as applied to claim 8 above, and further in view of Goetsch et al. (5,654,491).

The modified apparatus of De Jong et al. discloses the invention substantially as claimed, however, the modified apparatus fails to disclose a catalyst supported on wire guaze.

Goetsch et al. teaches a catalyst supported by wire gauze (col. 4, line 45- col. 5, line 16) for the purpose of maximizing surface area, therefore maximizing reaction sites, to promote mixing in the boundary layer and improve mass transport (col. 5, lines 17-

25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a catalyst supported by wire gauze in order to maximize reaction sites, promote mixing in the boundary layer and improve mass transport as taught by Goetsch et al.

7. Claims 26 and 27 are rejected under 35 U.S.C. 1O3(a) as being unpatentable over De Jong et al. in view of Heisel et al. (US 5676921).

With respect to claim 26, De Jong et al. discloses the invention substantially as claimed. De Jong et al. discloses a means for effecting catalytic partial oxidation (abstract) in a single reaction zone (Fig. 1 , 2) of a short time reactor (col. 6-7 lines 66-2), means for maintaining temperature above 500 degrees (claim 6), means for cooling (col. 8, lines 1 1-12), and means for recovering product gas (col. 8, lines 13-20). Though, De Jong et al. is silent to a means for recovering condensed elemental sulfur, De Jong et al. does disclose that any suitable technique for use in the desulfurization unit for removing sulfur from a gaseous stream known to the art can be used and as a means for removing sulfur from gas.

Heisel et al. teaches a sulfur condenser means for recovering elemental sulfur (title and abstract) for the purpose of having useful sulfur at the end of the process.

It would have been obvious to one of ordinary skill in the art at the time applicants' invention was made to have provided a means for recovering elemental sulfur in De Jong et al. in order to have useful sulfur at the end of the process as taught by Heisel et al.

As De Jong et al. discloses that any known process for desulfurization of the gas stream can be used (col. 8, lines 21-28), it would have been further obvious to one of ordinary skill in the art at the time the invention was made to have implemented the sulfur condenser of Heisel et al. for the sulfur removal unit in De Jong et al. since it is merely the selection of a means known to the art for the removal of sulfur from a gas stream.

With respect to claim 27, De Jong et al. discloses means for removing sulfur from synthesis gas product stream (col. 8, lines 21-27).

8. Claims 8, 9, 11, 12, 15, 17, 23 and 25-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over De Jong et al. (5,720,901) in view of Beavon (4,146,580).

With respect to claim 8, De Jong et al. discloses an apparatus for partial oxidation comprising:

a reaction zone (2) for receiving light hydrocarbons (col. 4, lines 16-29), H_2S (col. 5, lines 1-8) and oxygen (col. 4, lines 30-31);

said reaction zone including a catalyst suitable for partial oxidation (col. 4, lines 1-6); and

a sulfur removal zone (22).

De Jong et al. also discloses that a suitable technique for use in the desulfurization unit for removing sulfur from a the carbon monoxide/hydrogren product stream known to the art can be used, but fails to specify a sulfur condenser.

Beavon teaches wherein a condenser can be used to remove sulfur from a carbon monoxide/hydrogen stream of a partial oxidation reactor (abstract, col. 2, lines 19-29 and col. 4, lines 63-66).

As De Jong et al. discloses that any known process for desulfurization of the carbon monoxide/hydrogen gas stream can be used (col. 8, lines 21-28), it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the condenser of Beavon for the sulfur removal unit in De Jong et al. since it is merely the selection of a means known to the art for the removal of sulfur from a gas stream.

With respect to claim 9, De Jong et al. teaches that the hydrocarbon, oxygen and the sulfur-containing compound are "preferably well mixed prior to being contacted with the catalyst" (col. 5, lines 32-36) and discloses wherein the streams are mixed prior to being feed to the partial oxidation reactor (col. 7, line 65- col. 8, line 10).

With respect to claim 11, De Jong et al. discloses an oxygen line that communicates with the reaction zone (col. 7, lines 65-67).

With respect to claim 12, De Jong et al. discloses a mixing zone that receives oxygen (col. 5, lines 32-35).

With respect to claims 15 and 25, the apparatus of De Jong et al. as modified by Beavon results in a tailgas which still contains less than a stoichiometric equivalent of the carbon monoxide and hydrogen of sulfur (col. 4, line 63- col. 5, line 3). Thus, one would continue to apply the De Jong et al. reference for absorption of the remain sulfur for the tailgas for use in more sulfur sensitive applications (col. 8, lines 21-27).

With respect to claim 17, De Jong et al. discloses wherein the catalyst used contains rhodium, palladium, iridium or platinum (col. 5, line 65- col. 6, line 9).

With respect to claim 23, De Jong et al. disclose wherein catalyst is rhodium, palladium, iridium or platinum (col. 5, line 65- col. 6, line 9) and such catalysts are capable of catalyzing the claimed reactions.

With respect to claim 26, De Jong et al. discloses the invention substantially as claimed. De Jong et al. discloses a means for effecting catalytic partial oxidation (abstract) in a single reaction zone (Fig. 1 , 2) of a short time reactor (col. 6-7 lines 66-2), means for maintaining temperature above 500 degrees (claim 6), means for cooling (col. 8, lines 1 1-12), and means for recovering product gas (col. 8, lines 13-20).

De Jong et al. also discloses that a suitable technique for use in the desulfurization unit for removing sulfur from a the carbon monoxide/hydrogren product stream known to the art can be used, but fails to specify a sulfur condenser.

Beavon teaches wherein a condenser (operated to be "below 800°F" which includes temperatures below the dew point of sulfur; col. 3, lines 1-3) can be used to remove sulfur from a carbon monoxide/hydrogen stream of a partial oxidation reactor and a means to recover condense sulfur (26) (abstract, col. 2, lines 19-29, col. 3, lines 35-40, and col. 4, lines 63-66).

As De Jong et al. discloses that any known process for desulfurization of the carbon monoxide/hydrogen gas stream can be used (col. 8, lines 21-28), it would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the condenser of Beavon for the sulfur removal unit in De Jong et al.

since it is merely the selection of a means known to the art for the removal of sulfur from a gas stream.

With respect to claim 27, De Jong et al. discloses means for removing sulfur from synthesis gas product stream (col. 8, lines 21-27).

9. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Jong et al. (5,720,901) in view of Beavon (4,146,580) as applied to claim 9 above, and further in view of Dubois et al. (5,472,920).

The modified apparatus of De Jong et al. teaches a mixing zone prior to a reaction zone, but is silent as to a thermal barrier between the two.

Dubois et al. teaches a thermal barrier that can be used between the mixing and reaction zones (col. 1, lines 11-14) in a reactor for the purpose of preventing excess heating of certain components that when exceeding acceptable limits have deterioration in their properties. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a thermal barrier between the mixing zone and reaction zone in the modified apparatus of De Jong et al. in order to prevent excess heating of certain components that when exceeding acceptable limits have deterioration in their properties.

10. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over De Jong et al. (5,720,901) in view of Beavon (4,146,580) as applied to claim 8 above, and further in view of Goetsch et al. (5,654,491).

The modified apparatus of De Jong et al. discloses the invention substantially as claimed, however, the modified apparatus fails to disclose a catalyst supported on wire guaze.

Goetsch et al. teaches a catalyst supported by wire gauze (col. 4, line 45- col. 5, line 16) for the purpose of maximizing surface area, therefore maximizing reaction sites, to promote mixing in the boundary layer and improve mass transport (col. 5, lines 17-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a catalyst supported by wire gauze in order to maximize reaction sites, promote mixing in the boundary layer and improve mass transport as taught by Goetsch et al.

11. Claims 8 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lagas et al. (4,988,494) in view of Heisel (5,628,977).

With respect to claim 8, Lagas et al. teaches an apparatus comprising:

a partial oxidation (2) of feedstock, hydrogen sulfide and oxygen (col. 4, lines 8-13) and a sulfur condenser (5) for recovering elemental sulfur (col. 1, lines 12-17).

Lagas et al. teaches wherein the first partial oxidation reaction is thermal (col. 1, lines 30-35).

Heisel et al. teaches wherein the combustion in a Claus reaction plant, also to generate elemental sulfur, can be thermal or catalytic (col. 1,lines 12-18). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a catalytic combustion for the thermal combustion zone of Lagas et al. since it is merely the selection of functionally equivalent Claus combustion zones.

With respect to claim 21, Lagas et al. teaches wherein the apparatus comprises in sequence:

a reactor (2) for receiving hydrocarbon and H_2S feedstock (1) and oxygen (4);

a boiler (5) for receiving gases from the reactor (1);

a sulfur condenser (also boiler 5, col. 8, lines 17-19);

a heater (9) for receiving gases from the condenser; and

a tailgas cleanup unit (11) (in that it further removes sulfur from the stream) for receiving gases from the heater (9).

12. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lagas et al. (4,988,494) in view of Heisel (5,628,977), as applied to claim 21 above, and further in view of Kiliany et al. (5,512,260).

Modified Lagas et al. discloses the apparatus as described above as well as a cooler (13) for receiving gases from the tailgas cleanup unit (11), but is silent as to a quench tower.

Kiliany et al. also teaches a Claus plant and discloses wherein a quench tower is used to achieve a final temperature for the stream (col. 6, lines 2-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to supply a quench tower to the product stream of Lagas et al. in order to cool the product to a final temperature.

Response to Arguments

Drawings

The examiner would like to thank applicant for resubmitting corrected Figure 2.

35 USC §103

Applicant argues that all sulfur-containing gases are not treated the same way and therefor the condenser of Kiliany et al. is not necessarily suitable for DeJong et al.

The examiner respectfully disagrees. Kiliany et al. teaches that sulfur can be condensed out of a gas stream. This general teaching is applied to DeJong et al. and it is held that such a sulfur removal means would be effective in the stream of DeJong et al.

Applicant argues that H_2S is not necessarily converted to elemental sulfur in DeJong et al.

The examiner respectfully disagrees and notes that applicant has not provided evidence to show that elemental sulfur would not at all be produced. In fact, the examiner notes that DeJong has all of the same feeds, catalyst and structural elements of the instant invention and cannot find a reason why elemental sulfur would or could not also be formed in the reactor of DeJong.

Applicant argues that DeJong et al. teaches away from the condensable concentration of elemental sulfur in the product gas.

The examiner respectfully disagrees with applicant. The fact that DeJong et al. teaches an embodiment of the device wherein there would not be enough sulfur to "freeze" out of the gas, not a teaching away, but rather only one embodiment. In another embodiment DeJong et al. teaches wherein sulfur removal is required prior to use in another process (col. 8, lines 21-28).

Applicant argues that sulfur condensation is not a "conventional syngas cleanup technique" and therefore one would not consider sulfur condensation in DeJong et al.

The examiner respectfully disagrees. Just because applicant has provided a reference to illustrate some conventional techniques, such as sulfur absorption, which are known to the art does not exclude other techniques which are not listed in that reference from also being conventional (see the rejections using the Beavon reference above).

Applicant again appears to argue that all sulfur-containing gases are not treated the same way and therefor the condenser of Kiliany et al. is not necessarily suitable for DeJong et al.

The examiner respectfully disagrees. Kiliany et al. teaches that sulfur can be condensed out of a gas stream. This general teaching is applied to DeJong et al. and it is held that such a sulfur removal means would be effective in the stream of DeJong et al.

Applicant argues that a condenser is not a substitute for a desulfurization unit and therefore DeJong et al. and Kiliany et al. cannot be combined.

The examiner respectfully disagrees. There are not specific limitations as to what defines a "desulfurization unit" in DeJong et al. so the examiner finds this argument to lack merit. Additionally, applicant again points to the declaration of Alfred E. Keller which has been addressed in the previous office action as not persuasive in that many operational conditions which are not limitations of the claims or cited references where assumed.

Applicant argues that there is no teaching or suggestion to modify the apparatus of DeJong et al.

The examiner respectfully disagrees. DeJong et al. itself states that a variety of "suitable processes for use in the desulfurization unit" can be used. Such language leads one to look toward various desulfurization techniques on its own teaching.

With respect to claims amended claims 15 and 25, new art has been applied making these arguments moot.

With respect to claim 21, applicant argues that the waste heat boiler for gases from the reactor are the same device used to cool the gas and therefor the proposed modification would be opposite to the heater of claim 21.

The examiner respectfully disagrees. The waste heat boiler and condenser are the same device. There mere fact that a structure is integral does not preclude its consisting of various elements. Nerwin v. Erlichman, 168 USPQ 177, 179 (PTO Bd. of Int. 1969). The heater of Kiliany et al. as applied is heater (81).

With respect to claim 22, in response to applicant's argument that the particular problem to be solved by DeJong et al. is not the same as that of Kiliany et al., the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

With respect to claim 23, Applicant argues that the catalyst of DeJong et al. would not know to establish the process conditions of applicants disclosure to generate the reactions of the claim.

It is noted that claim 23 only recites that the catalyst is "capable" of achieving such reactions. As the catalyst of DeJong et al. is the same as that claimed, it is held that it is inherently capable of performing the same reactions. An apparatus claim covers what a device is, not what a device does. MPEP 2114. As such, it does not matter if DeJong et al. does not provide the operational conditions to perform the same reactions, only that the catalyst is capable of performing them.

The arguments toward claims 8-12, 16, 17, 26 and 27 do not present anything further than what has already been addressed regarding the combination of DeJong et al. and Kiliany et al.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alexa Doroshenk
Patent Examiner
Art Unit 1764

June 17, 2004